

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

Civil Action No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

**PLAINTIFF SINGULAR COMPUTING LLC'S
SECOND SUPPLEMENTAL CLAIM CONSTRUCTION BRIEF**

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Following the *Markman* hearing, the Court allowed the parties to file a supplemental brief. Plaintiff, Singular Computing LLC (“Singular”), respectfully submits this Second Supplemental Claim Construction Brief.

I. INTRODUCTION

The *Markman* hearing demonstrated two fundamental points. First, Google’s invalidity position is rife with material factual disputes and thus premature. Second, Google’s attempt to rewrite the claims is legally and factually erroneous. Moreover, it is directly contrary to Google’s representations to the PTAB that the claims at issue need no construction and should be given their plain and ordinary meaning.

II. ARGUMENT

A. Google’s Invalidity Argument Is Premature

Last week’s hearing made it clear that there are multiple disputed material facts underlying Google’s invalidity claim. *See* Singular Hearing Demonstratives, slides 31-37. Google bears the burden of proof on the issue of indefiniteness, which here involves numerous factual questions that must be proven by clear and convincing evidence. *Sonix Tech.*, 844 F.3d at 1377; *see also Cox Comm’s, Inc. v. Sprint Comm. Co. LP*, 838 F.3d 1224, 1228 (Fed. Cir. 2016) (“Any fact critical to a holding on indefiniteness must be proven by the challenger by clear and convincing evidence” (citing *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003)); *see also* Singular Reply Br. at 8.

Google disputes a fundamental fact central to its own indefiniteness argument: namely, that the average of output values will, over time, converge to a stable statistical mean:

THE COURT: In other words, over time, this, I don't know what the right word is, but flattens out or this noise business becomes less important, in other words, if you perform this 10 million times, it's different from 10 times?

MS. YBARRA: That's what Dr. Khatri contends, and that's what his graph shows.

Hearing Tr. at 33:16-21 (emphasis added). As the above exchange demonstrates, whether or not the average “flattens out” to a statistical mean, given enough repeated executions, is a disputed material question of fact.

The parties also dispute how a person of ordinary skill in the art would understand the science. As Singular explained, a person of ordinary skill in the art would understand that a stable statistical mean is guaranteed by the Law of Large Numbers. *See, e.g.*, Hearing Tr. at 73:7-76:24. Google denies this:

MS. YBARRA: He is saying a person of skill in the art would understand that, but that's not enough. He can't come in and make that statement ...

Hearing Tr. at 80:6-8. Thus, the issues before the Court hinge not only on disputes regarding the underlying science, but also disputes over how a person of ordinary skill in the art would understand that science.

At the hearing, Google tried to avoid these disputes of fact through artful misdirection. It alleged, for example, that its indefiniteness position rests on five allegedly “undisputed” facts, most of which are in fact explicitly disputed by both Singular and its expert, Dr. Khatri:

Absence of Material Disputes Relevant to Indefiniteness	
"Repeated execution" supplies the test for determining whether LPHDR execution units' operations meet the claimed inaccuracy threshold	Undisputed DISPUTED
The claims, specification, and prosecution history provide no guidance on how many repeated executions are required	Undisputed DISPUTED
The asserted patents include analog embodiments	Undisputed
Analog systems cannot generate repeatable results when executing a given operation on particular input	Undisputed DISPUTED
In an analog system, different numbers of executions of an operation will yield inconsistent results and, by extension, a statistical mean that can drift in and out of the claimed degree of inaccuracy	Undisputed DISPUTED

Google's Slide 35, Corrected by Singular

First, the claim term “repeated execution” must be considered in conjunction with the conjoined claim term “statistical mean”.

Second, the claim itself provides specific guidance on how many repeated executions are required, namely enough repeated executions to provide the claimed statistical mean.

And finally, an analog system can indeed produce a meaningful and predictable result. Singular and Dr. Khatri have demonstrated again and again, at the hearing and in written briefs and declarations that, in a functioning analog circuit, the average value of the output over repeated executions will always stabilize to the claimed statistical mean in mere small fractions (*i.e.*, thousandths/millionths of a second). *See, e.g.*, Singular Repl. Br. at 3-9; *see also* Khatri Decl., ¶¶ 28-34; *see also* Singular Hearing Demonstratives, slides 31-37.

The Federal Circuit has held that indefiniteness “is amenable to *resolution by the jury* where the issues are factual in nature.” *BJ Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F.3d 1368, 1372 (Fed. Cir. 2003) (emphasis added). This principle holds true in particular when indefiniteness hinges on a “question about the state of the knowledge of a skilled artisan”, which the Federal Circuit has explicitly identified as “a question of fact.” *Dow Chem. Co. v. Nova*

Chems. Corp. (Canada), 809 F.3d 1223, 1225 (Fed. Cir. 2015). Therefore, the Court should reject Google’s invalidity argument as premature.

B. Singular’s Positions Are Supported By Evidence

Google disputes that the average value of the output over repeated executions will stabilize to the claimed statistical mean, and further disputes that a person of ordinary skill in the art would understand this to be true. However, while both of these facts are in *dispute*, they are not in *doubt*. Singular’s expert Dr. Khatri has presented testimony and experimental evidence supporting Singular’s position on both of these issues. By contrast, Google’s expert Dr. Wei did not address these issues at all. Dr. Khatri’s testimony, therefore, is unrebutted evidence.

This imbalance of evidence is compounded by the fact that Google’s *own* experts cannot agree on the underlying facts. The opinion of Dr. Wei that Google submitted to this Court is in direct conflict with the expert declarations of Mr. Goodin that Google submitted to the Patent Office in support of Google’s Petitions for IPR. Mr. Goodin had no problem finding that the asserted claims provide “reasonable certainty” regarding the scope of the claims, and readily applied the claims to the prior art. *See* Singular Reply Br. at 2.

Google attempts to distract from this evidence by mischaracterizing and outright cropping the testimony of Singular’s expert Dr. Khatri. For example, Google falsely insinuates that Dr. Khatri “admits” the statistical mean fluctuates over time:

Singular Admits that Noise Will Cause the Average to Fluctuate



Sunil Khatri

- “[D]evices that use analog signals to represent numbers ‘introduce noise into their computations.’ See ’273 patent at 4:12-13. Performing the same operation twice with identical inputs will statistically produce different output values, and initially, a ***fluctuating arithmetic average.***” Khatri Decl., ¶ 33
- “[T]he arithmetic average of the output value is **unstable and fluctuates significantly** over short periods of time . . . ” Khatri Decl. ¶ 34 (describing graph)

Google’s Misleading Statements Regarding Dr. Khatri’s Testimony (Slide 29)

With the above slide, Google misleads the Court about the substance of Dr. Khatri’s testimony by presenting cropped quotes from his Declaration. In reality, Dr. Khatri explains in these two passages how the claimed “statistical mean, over repeated execution” does not fluctuate. For example, expanding the first citation from ¶ 33 of his declaration, Dr. Khatri explains:

Performing the same operation twice with identical inputs will statistically produce different output values, and initially, a fluctuating arithmetic average. However, a POSITA would understand that . . . the average of those output values, over repeated executions, goes . . . to a stable statistical mean that does not meaningfully fluctuate.

Khatri Decl. at ¶ 33 (emphasis added). Similarly, expanding the second quotation from Google’s misleading slide shows reveals the following additional explanation:

At first, near the left side of the graph, the arithmetic average of the output value is unstable and fluctuates significantly over short periods of time (as shown by the magnified portion of the graph outlined using the red box). However, the arithmetic average of the output value begins to stabilize with more repeated executions of that single operation, holding steady at a value of 2.00.

Khatri Decl. at ¶ 34 (emphasis added). Google’s cropped quotations are only exemplary of its propensity to misstate the record evidence.

Google’s lack of evidence extends not only to its invalidity position but also to its proposed claim constructions. For example, despite its argument that an “LPHDR execution

unit” does not require a “memory,” Google’s position is wholly unsupported by the intrinsic evidence; it cannot point to a *single embodiment* described in the specification of the patents-in-suit with an LPHDR execution unit that *lacks* a memory. *See* Hearing Tr. 52:14-55:4.

Further, Google wrongfully suggests that Singular’s positions in the IPR somehow support its attempt to rewrite the claim to replace “signals” with “values.” *See, e.g.*, Google Hearing Demonstratives, Slide 47. In fact, Singular’s IPR Response merely stands for the scientific fact that in a computing device numerical values are represented by electrical signals (*e.g.*, by measuring voltage or current levels of such signals). As the Court itself stated:

THE COURT: I’m struggling to understand what the point of this is or what you’re even fighting about … In a computer, that takes the form of an electrical signal, right, which is whatever it is, 101. I don’t know how that’s done, electrical charge or something, but that’s a signal, and it represents a numerical value, which is 5, and I’m not sure what you’re fighting about. I’m not sure what your construction adds to that.

Hearing Tr. at 61:12-22. This is yet another example of Google taking a statement out of context. Cherry-picking quotes out of context and cropping testimony is simply unacceptable claim construction advocacy. *See, e.g.*, *Am. Superconductor Corp. v. S & C Elec. Co.*, No. 11-10033-FDS, 2012 WL 5932071, at *8 (D. Mass. Nov. 26, 2012) (rejecting defendant’s reliance in claim construction proceeding on “incomplete quotations that misconstrue the [plaintiff’s] arguments”).

III. CONCLUSION

In view of the above, Singular requests the Court to adopt Singular’s proposed construction and reject Google’s proposed constructions and invalidity position.

Dated: April 7, 2021

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that on April 7, 2021, I served this document on Defendant by causing a copy to be sent via electronic mail to its counsel of record.

/s/ Paul J. Hayes